

AMENDMENTS TO THE SPECIFICATION

IN THE SPECIFICATION:

Page 16

Please amend the Specification on page 16 beginning at line 7 as follows:

The amount of the polymerization catalyst expressed as the ratio of the amount by mole of the ruthenium metal to the amount by mole of the alicyclic olefin monomer in the polymerization catalyst (ruthenium metal : monomer) is 1:100 to 1:2,000,000, preferably 1:500 to 1:1,000,000 and more preferably 1:1,000 to 1:500,000. When the amount of the catalyst exceeds the amount expressed by 1:100, removal of the catalyst occasionally becomes difficult. When the amount of the catalyst is less than the amount expressed by 1:2,000,000, the sufficient copolymerization activity is not obtained, occasionally. The temperature of the polymerization is not particularly limited. The temperature of the polymerization is, in general, -100 to 200°C, preferably -50 to 180°C, more preferably -30 to 160°C and most preferably 0 to 140°C. The time of the polymerization is, in general, 1 minute to 100 hours. The time of the polymerization can be adjusted in accordance with the progress of the polymerization.

Page 17

Please amend the Specification on page 17 beginning at line 3 as follows:

Examples of the hydrogenation catalyst include Ziegler catalysts which are

combinations of transition metals and alkali metal compounds such as combinations of cobalt acetate and triethylaluminum, nickel acetylacetonate and triisobutylaluminum, titanocene dichloride and n-butyllithium, zirconocene dichloride and sec-butyllithium and tetrabutoxy titanate and dimethylmagnesium; homogeneous catalysts including noble metal complex catalysts such as organoruthenium compounds represented by the above general formula (2), chlorotris- (triphenylphosphine)rhodium and ruthenium compounds described in Japanese Patent Application Laid-Open Nos. Heisei 7(1995)-2929, Heisei 7(1995)-149823, Heisei 11(1999)-209460, Heisei 11(1999)-158256, and Heisei 11(1999)-193323 ~~and Heisei 11(1999)-209460~~; and heterogeneous catalysts containing a metal such as nickel, palladium, platinum, rhodium and ruthenium supported on a support such as carbon, silica, diatomaceous earth, alumina and titanium oxide. Specific examples of the hydrogenation catalyst include nickel/silica, nickel/diatomaceous earth, nickel/alumina, palladium/carbon, palladium/silica, palladium/ diatomaceous earth, palladium/alumina, ruthenium/silica, ruthenium/alumina, ruthenium/carbon, platinum/silica, platinum/alumina, rhodium/ alumina and rhodium/carbon.

Page 24

Please amend the Specification on page 24 beginning at line 13 as follows:

In the present invention, a solvent dissolving the components described above can be used as the solvent of component (D). Examples of the solvent include alcohols such as methanol, ethanol, propanol, butanol and 3-methoxy-3-methylbutanol; cyclic ethers such as tetrahydrofuran and dioxane; cellosolve esters such as

methylcellosolve acetate and ethylcellosolve acetate; glycol ethers such as ethylene glycol monoethyl ether, ethylene glycol monopropyl ether, ethylene glycol monobutyl ether, propylene glycol monoethyl ether, propylene glycol monopropyl ether, propylene glycol monobutyl ether, diethylene glycol monomethyl ether, diethylene glycol monoethyl ether and dipropylene glycol monomethyl ether; propylene glycol alkyl ether acetates such as propylene glycol propyl ether acetate; aromatic hydrocarbons such as benzene, toluene and xylene; ketones such as methyl ethyl ketone, cyclohexanone, 2-heptanone and 4-hydroxy-4-methyl-2-pentanone; esters such as ethyl 2-hydroxypropionate, ethyl 2-hydroxy-2-methylpropionate, ~~ethyl 2-hydroxy-2-methylpropionate~~, ethyl ethoxyacetate, ethyl hydroxyacetate, methyl 2-hydroxy-3-methylbutyrate, methyl 3-methoxypropionate, ethyl 3-methoxypropionate, ethyl 3-ethoxy propionate, methyl 3-ethoxypropionate, ethyl acetate, butyl acetate and ethyl lactate; and aprotic polar solvents such as N-methylformamide, N,N-dimethylformamide, N-methyl-2-pyrrolidone, N-methylacetamide, N,N-dimethylacetamide, dimethyl sulfoxide and  $\gamma$ -butyrolactone.

Page 33

Please amend the Specification on page 33 beginning at line 8 as follows:

In accordance with the polymerization process using a tungsten catalyst which was disclosed in Synthesis Example 1 of Japanese Patent Application Laid-Open No. Heisei 11(1999)-52574 10(1998)-307388, the ring-opening polymerization of 8-methyl-8-methoxycarbonyltetracyclo-[4.4.0.1<sup>2,5</sup>.1<sup>7,10</sup>]-dodeca-3-ene was conducted, and a ring-opening polymer having a

weight-average molecular weight of 16,800 was obtained. The conversion of the polymerization was about 100%. After the obtained ring-opening polymer was hydrogenated, the product of the hydrogenation was hydrolyzed at 190°C for 4.5 hours, and an alicyclic olefin resin having a polar group (Polymer E) was obtained. The degree of hydrogenation was 100%, and the degree of hydrolysis was 95%.

Page 34

Please amend the Specification on page 35 beginning at line 18 as follows:

The alicyclic olefin resin obtained in Synthesis Example 1 (Polymer A) in an amount of 100 parts by weight, 550 parts by weight of cyclohexanone as the solvent, 20 parts by weight of a condensate of 1,1,3-tris(2,5-dimethyl-4-hydroxyphenyl)-3-phenyl propane (1 mole) and 1,2-naphthoquinonediazide-5-sulfonic acid chloride (1.9 moles) as the acid-generating agent, 25 parts by weight of CYMEL 300 as the crosslinking agent, 5 parts by weight of  $\gamma$ -glycidoxypyrpyltrimethoxysilane as the auxiliary adhesive and 0.05 parts by weight of MEGAFACK F172 (manufactured by DAINIPPON INK AND CHEMICALS INCORPORATED) as the surfactant were mixed, and a solution was prepared. The prepared solution was filtered through a Millipore filter having a pore size of 0.45  $\mu\text{m}$ , and a solution of a radiation sensitive resin composition was prepared. The prepared solution was applied to a silicon substrate, a glass substrate and a substrate having a silicon oxide film with a step of 1  $\mu\text{m}$  (this substrate will be referred to as a stepped substrate) in accordance with the spin coating process. The coated substrates were prebaked on a hot plate at 90°C for 2 minutes, and coating films having a thickness of 3.0  $\mu\text{m}$  were formed. Masks having prescribed patterns were placed on the silicon substrate, the glass substrate and the stepped substrate, and ultraviolet light having a wavelength of

365 nm and an intensity of 5 mW/cm<sup>2</sup> was applied for 40 seconds under the atmosphere of the air. Then, the development was conducted at 25°C for 60 seconds using a 0.3% aqueous solution of tetramethylammonium. Then, rinsing with ultra-pure water was conducted for 1 minute, and thin films having patterns of the positive type were formed. Then, the entire faces were irradiated with ultraviolet light having a wavelength of 365 nm and an intensity of 5 mW/cm<sup>2</sup> for 60 seconds. The silicon substrate, the glass substrate and the substrate having a silicon oxide film with a step of 1 µm on which the patterns were formed, were heated on a hot plate at 200°C for 30 minutes for post baking of the pattern film and the coating film, and a silicon substrate, a glass substrate and a stepped substrate on which thin pattern films were formed were obtained.

Page 37

Please amend the Specification on page 37 beginning at line 19 as follows:

In addition to the above evaluations, the property for development and the storage stability of the resin (Polymers A to ~~D~~F) used in Examples and Comparative Examples were evaluated in accordance with the following methods.

The results are shown in Table 2.

(1) Property for development